

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of

SUGIMOTO et al.

Serial No. 10/507,016

Filed: July 18, 2005

For: CURABLE LIQUID RESIN COMPOSITION

Conf. No.: 6554

Atty. Ref.: ES-4676-25

TC/A.U.: 1794

Examiner: E.M. Cole

June 18, 2010

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Appellant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the Examiner on February 2, 2010 and the Advisory Action of June 16, 2010. Appellants submit this Brief under 37 CFR § 41.37 to appeal the Examiner's rejections of claims 12-25 as set forth in her Office Action mailed February 2, 2010.

Applicants note that the Office Action of February 2, 2010 reopened prosecution and was issued in response to Applicants' Appeal Brief of May 13, 2009. Thus this Appeal Brief is properly filed.

Applicants note that the previously paid Notice of appeal fee and appeal brief fee can be applied to the current Appeal. Thus, Applicants believe that no additional fees are necessary for the filing of this Appeal Brief. However, if additional fees are necessary, including fees for an extension of time, Applicants specifically petition for said extension

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of time and authorize the charge of any fees to Deposit Account 14-1140 under Order
Number 4676-25.

The Notice of Appeal was filed on April 30, 2010. Therefore, this Brief is due on
or before June 30, 2010.

Reversal of the Examiner's claim rejections by the Board of Patent Appeals and
Interferences (the "Board") is respectfully requested.

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(I) REAL PARTY IN INTEREST

The assignees, DSM IP ASSETS B.V. and JSR Corporation, hold all rights in the subject invention by the assignment recorded in the Patent and Trademark Office on September 22, 2005 starting at reel 017012 and frame 0705.

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(II) RELATED APPEALS AND INTERFERENCES

Appellants, the assignee, and its legal representative do not know of any prior or pending appeal, interference, or judicial proceeding which is related to, directly affects or is directly affected by, or has a bearing on the Board's decision in this appeal.

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(III) STATUS OF CLAIMS

Claims 12-25 are pending and have been rejected. No claims have been substantively allowed.

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(IV) STATUS OF AMENDMENTS

The Specification was amended after the last Office Action of February 2, 2010. The amendment to the Specification was made in an Amendment and Response filed on June 3, 2010. In the Advisory Action of June 16, 2010, the amendment to the Specification was entered by the Examiner.

No amendments to the claims have been filed since the date of the last Office Action.

(V) SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 12 involved in this appeal is directed to a coated optical fiber comprising a cured primary coating with a modulus of less than 3 MPa at 23°C and a cured secondary coating based on a curable liquid resin composition comprising

- (a) 5-94 parts by weight of a urethane (meth)acrylate comprising a polyether backbone, at least one urethane group and at least one (meth)acrylate end group;
- (b) 5-94 parts by weight of a polymerizable monomer, and;
- (c) 0.01-10 parts by weight of a photoinitiator, in 100 parts by weight of the curable liquid resin composition, wherein the cured product of the curable liquid resin composition has a glass transition temperature between 30°C to 85°C and a stress relaxation time of 30 minutes or less.

The subject matter of claim 12 is supported by the originally filed disclosure (see, e.g., the originally filed claims 1 and 12 and the Specification at page 2 line 18 to 34. Therefore, the invention as presently claimed is clearly supported by Appellants' disclosure as originally filed.

(VI) GROUND OF REJECTION TO BE REVIEWED ON APPEAL

- A. Question: Under 35 U.S.C. 112, first paragraph, was it proper to reject claims 12-25 as allegedly as allegedly failing to comply with the written description requirement?
- B. Question: Under 35 U.S.C. 103(a), was it proper to reject claims 12-25 as allegedly unpatentable over Uchida et al. (WO 01/47824 A1), Shustack (U.S. Patent 5,536,529), Bicerano (Predication of Polymer Properties) and Furukawa (Physical Chemistry of Polymer Rheology)?

Applicants respectfully state that these rejections were not proper and offer the following arguments in support of their statement.

(VII) ARGUMENT

The pending claims should be considered in one group. The group includes claims 12-25.

35 U.S.C. 112 – Appellants' Reasons why Claims 12-25

Comply with the Written Description Requirement

A. Claims 12-25 were rejected under 35 U.S.C. 112 first paragraph as failing to comply with the written description requirement. Applicants traverse this rejection.

The Examiner alleged that “the Specification as originally filed does not provide support for the limitation that the cured primary coating has a modulus of less than 3MPa [at] 23C.” However, the Examiner also stated that “the specification may be amended to insert this limitation since original claim 12 did include the recitation of a modulus of less than 3MPa to overcome this rejection.”

Applicants have amended the specification to include original claim 12 in the Amendment and Response of June 3, 2010. This amendment to the Specification was entered by the Examiner in the Advisory Action of June 16, 2010. In view of this amendment to the Specification, Appellants respectfully assert that this rejection is moot and request that this rejection be reversed by the Board.

35 U.S.C. 103 – Appellants' Reasons why Claims 12-25

should be considered Nonobviousness

Under U.S. Patent Law, 35 U.S.C. §103, to establish a case of prima facie obviousness, all of the claim limitations must be taught or suggested by the prior art. See M.P.E.P. § 2143.03. A claimed invention is unpatentable if the differences between it and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. *In re Kahn*, 78 USPQ2d 1329, 1334 (Fed. Cir. 2006) citing the legal standard provided in *Graham v. John Deere*, 148 USPQ 459 (1966). The *Graham* analysis needs to be made explicitly. *KSR v. Teleflex*, 82 USPQ2d 1385, 1396 (2007). It requires findings of fact and a rational basis for combining the prior art disclosures to produce the claimed invention. See *id.* (“Often, it will be necessary for a court to look to interrelated teachings of multiple patents . . . and the back-ground knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue”). The use of hindsight reasoning is impermissible. See *id.* at 1397 (“A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning”). Thus, a rejection under Section 103(a) requires “some rationale, articulation, or reasoned basis to explain why the conclusion of [prima facie] obviousness is correct.” *Kahn*, 78 USPQ2d at 1335; see *KSR*, 82 USPQ2d at 1396.

B. Claims 12-25 were rejected under Section 103(a) as allegedly being unpatentable over Uchida et al. (WO 01/47824 A1), Shustack (U.S. Patent 5,536,529), Bicerano (Predication of Polymer Properties) and Furukawa (Physical Chemistry of Polymer Rheology). Appellants traverse this rejection and request that it be withdrawn and that a Notice of Allowance be sent for all pending claims.

The claimed invention, as embodied in pending claims 12-25, is directed to optical fibers with a primary coating having a modulus of less than 3 MPa at 23°C and a secondary coating comprising 5-94 parts by weight of urethane, 5-94 parts by weight of a polymerizable monomer, and 0.01 - 10 parts by weight of a photoinitiator with from a curable resin composition with a glass transition temperature between 30°C and 85°C and a stress relaxation time of 30 minutes of less.

The teachings of Uchida do not render claims 12-25 obvious. Uchida refers to liquid curable resin compositions for coating optical fibers. Uchida's compositions comprise urethane (meth)acrylate compounds, (meth)acrylate compounds, and a polymer initiator. Significantly, Uchida is silent regarding the glass transition temperature and relaxation time of the secondary coating. In addition, Uchida is also silent with respect to "an optical fiber with a primary coating with a modulus of less than 3 MPa." See, pending claim 12. Since Uchida is silent as to the composition of the primary coating we do not know Uchida's primary coating composition and it cannot be argued that Uchida inherently discloses a primary coating having a modulus of less than 3 MPa at 23°C. For these reasons, the claimed invention is not obvious in view of Uchida.

The addition of Shustack does provide sufficient information to combine with the teachings of Uchida to render the claimed invention obvious. The Examiner added Shustack to show the desirable values of glass transition temperature and modulus. Claims 12-25 claim a coated optical fiber, with a secondary coating of specific

composition, wherein the primary coating and secondary coating has to satisfy, at least, three (claim limitations) including:

- (1) a modulus of less than 3MPa for the primary coating,
- (2) a glass transition temperature of between 30°C to 85°C for the secondary coating, and
- (3) a stress relaxation time of 30 minutes or less for the secondary coating.

Since Shustack's coated optical fiber has a different composition than the claimed coated optical fiber, Shustack merely shows what is desirable in a coated optical fiber.

Significantly, Shustack or a combination of the cited references, does not show how to achieve limitations (1) and (2) above with the claimed secondary coating composition which is a secondary coating comprising 5-94 parts by weight of urethane, 5-94 parts by weight of a polymerizable monomer, and 0.01 - 10 parts by weight of a photoinitiator.

That is, a combination of Uchida and Shustack's teachings still does not enable the coated optical fibers of claims 12-25. Furthermore, Shustack, like Uchida, is still completely silent as to limitation (3) above (i.e., a stress relaxation time of 30 minutes or less for the secondary coating).

The addition of the separate teachings of Furukawa and Bicerano to the teachings of Uchida and Shustack does not make the claimed invention obvious. Furukawa and Bicerano are general textbook references relating to the field of polymers and their properties. Neither Furukawa nor Bicerano teaches the fabrication of optical fibers. The

combination of the separate teachings of Uchida, Shustack, Furukawa and Bicerano does not and cannot teach or suggest all the limitations of the claimed invention as recited in claim 12. That is, Furukawa and Bicerano are silent, and thus unhelpful, with respect to teaching about the glass transition temperature and relaxation time of the secondary coating, and the modulus of the primary coating.

For the reasons stated above, this rejection should be reversed because the Examiner failed to show individually all limitations of Appellants' claimed invention were obvious in view of each of Uchida, Shustack, Furukawa, and Bicerano separately. In addition the Examiner has failed to illustrate that collectively the teachings of Uchida, Furukawa and Bicerano can render the instant claimed invention obvious. For example, as stated above, the combination of cited references is silent as to at least one limitation of the claimed invention relating to a stress relaxation time of 30 minutes or less.

In view of Applicants statements above, Appellants urge the Board to reverse the obviousness rejection because the invention as claimed would not have been obvious to a person of ordinary skill in the art at the time it was made.

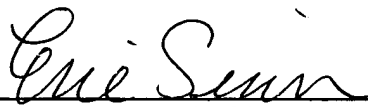
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CONCLUSION

For the reasons discussed above, the Examiner's rejections are improper and they should be reversed by the Board. Appellants submit that the pending claims are in condition for allowance and earnestly solicit an early Notice to that effect.

Respectfully submitted,

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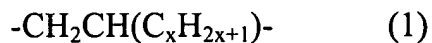
(VIII) CLAIMS APPENDIX

12. A coated optical fiber comprising a cured primary coating with a modulus of less than 3 MPa at 23°C and a cured secondary coating based on a curable liquid resin composition comprising:
- (a) 5-94 parts by weight of a urethane (meth)acrylate comprising a polyether backbone, at least one urethane group and at least one (meth)acrylate end group;
 - (b) 5-94 parts by weight of a polymerizable monomer, and;
 - (c) 0.01-10 parts by weight of a photoinitiator, in 100 parts by weight of the curable liquid resin composition,
- wherein the cured product of the curable liquid resin composition has a glass transition temperature between 30°C to 85°C and a stress relaxation time of 30 minutes or less.
13. The coated optical fiber of claim 12, wherein said cured product of the curable liquid resin composition has a glass transition temperature higher than 50°C.

14. The coated optical fiber of claim 12, wherein said cured product of the curable liquid resin composition has a glass transition temperature less than 75°C.
15. The coated optical fiber of claim 12, wherein said cured product of the curable liquid resin composition has a stress relaxation time of 20 minutes or less.
16. The coated optical fiber of claim 12, wherein said cured product of the curable liquid resin composition has a stress relaxation time of 10 minutes or less.
17. The coated optical fiber of claim 12, wherein said cured product of the curable liquid resin composition has a Young's modulus of between 400 and 500 MPa.
18. The coated optical fiber of claim 12, wherein said cured product of the curable liquid resin composition has a Young's modulus of between 500 and 1200 MPa.

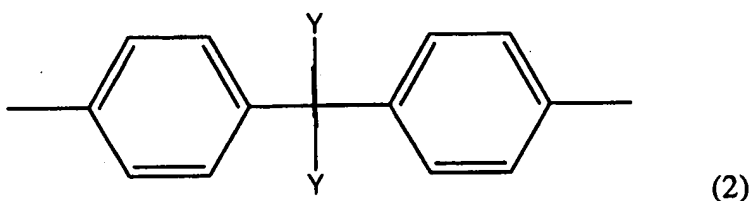
19. The coated optical fiber of claim 12, wherein said cured product of the curable liquid resin composition has a Young's modulus of between 600 and 1000 MPa.
20. The coated optical fiber of claim 12, wherein said urethane (meth)acrylate is based on at least:
 - a polyether based polyol;
 - a diisocyanate, and;
 - a hydroxyl group-containing (meth) acrylate.
21. The coated optical fiber of claim 12, wherein said polyether backbone is derived from a polyether based polyol having a number average molecular weight of 300-10000,
wherein said polyether based polyol comprising repeating alkyl units containing 2 to 6 carbon atoms,
wherein at least part of these alkyl units contain an alkyl side chain of 1 to 5 carbon atoms.

22. The coated optical fiber of claim 12, wherein said polyether backbone is derived from a polyether based polyol comprising a structural unit shown by the following formula (1)



wherein x is an integer of between 1 and 5.

23. The coated optical fiber of claim 22, wherein x in said formula (1) is 1 or 2.
24. The coated optical fiber of claim 20, wherein said polyether based polyol is a polyether diol, and wherein said polyether diol contains a structure shown by the following formula (2)



wherein Y represents a hydrogen atom or a methyl group.

25. The coated optical fiber of claim 20, wherein said polyether based polyol is a polyether diol, and wherein said polyether diol contains an alicyclic structure.

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(IX) EVIDENCE APPENDIX

None.

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(X) RELATED PROCEEDINGS APPENDIX

None.